

AVIATION WEEK

OCT. 27, 1947

INCORPORATING AVIATION AND AVIATION NEWS

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AVIATION WEEK, October 27, 1947

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AVIATION WEEK, October 27, 1947

THE AVIATION WEEK

Survey Analyzes A Two Billion Dollar Market

The bright promise for the aeronautical manufacturing industry's growth lies in a civilian market which, having increased amazingly since before the war, is still far from glutted. Meanwhile, the largest single customer is the U. S. Government—generally Air Force and Navy.

These are the prime facts being studied in American Wind's analysis of a two billion dollar market (Page 26). Because of the preponderance of government business, the survey of expenditures for aeronautical products covers the fiscal year which began July 1, 1947 and will end June 30, 1948. Air Force and Navy expenditures will be roughly 69 percent of the whole.

Expenditures by airlines and private firms—in a period commonly thought to be poor—will be 29 percent, or about half a billion dollars.

This is money spent only for products of aeronautical manufacturers. It does not include payrolls. Missing also are any estimated figures on another large segment of the civilian aviation market: Non-scheduled and feed-back operations not reflected in expenditures under private flying. That would add considerably to the size of the market.

WHAT MAKES A MARKET?—Popular yardstick for the growth of private flying has been the automotive industry. That constitutes a comparison of aerial business of those companies manufacturing automobiles and those producing personal-type airplanes. But the automobile manufacturers make trucks and buses. And air-craft companies (even some making personal-type planes) produce transport planes.

A better comparison is the aeronautical manufacturing industry as a whole vs. the automobile manufacturing industry.

Sales this calendar year of the aviation manufacturing industry will be about \$1,750,000,000—roughly one-eighth the volume of the automobile manufacturing industry—for many years considered an industrial giant.

AVIATION ADVANTAGE—The aeronautical manufacturing industry's market at the moment is overwhelmingly government. The, untold of diminishing the importance of the automobile manufacturing business, points it up.

The civilian market will grow, and shows the best growth potential for the long pull. And in addition, the military and naval business will be heavy for some years to come.

The automobile industry is progressive builds almost exclusively for a civilian market. The aviation industry has a tremendous civilian market still to exploit, with a large military market still in review.

EMERGENCE OF AN INDUSTRY—The war in Europe was felt little by the aeronautical industry in this country until early in 1940. So 1939 was the last full peacetime year. In that year, aviation was truly small business. Expenditures for aeronautical products—which represents the market—were less than two hundred million dollars.

Aeronautical manufacturing was a war baby the like of which has never been seen. But the unexpected thing is that the baby, after a year on a peacetime diet, has continued to grow.

Aviation is no longer a small business. It is an industry. In 1939, there were about 13,000 personal planes registered. This year there are nearly 90,000, an increase of about 600 percent. In 1939, personal plane shipments were 3,500. This year, they will be perhaps 15,000.

In 1939, the scheduled airlines employed about 36,000 people, operated 399 planes and had gross revenues of \$7,500,000. This year, the scheduled airlines employ 36,000, operate more than 700 planes and expect revenue totaling about \$600,000,000.

The manufacturing side of the industry in 1939 employed approximately 64,000 people and had sales of \$270,000,000. Employment has picked up in the past few months of this year, is now close to 140,000, and revenue this year is estimated at \$1,750,000,000.

THE FUTURE—Factors considered in the assessment of aviation's position today should instill in the most confirmed conservative, confidence for the future.

Dollar value of personal planes shipped next year should be at least as great as the \$75,000,000 expected this year, although numbers may be less. Shipments of transport planes should be greater.

In the light of known international conditions and aims of planners, Air Force and Navy appropriations should be greater.

Expenditures of CAA, or related to CAA, should be considerably greater. Excluding the airport program, that agency's largest expenditures in the aviation market are for navigational equipment. Funds for navigational equipment were thinned this year through a combination of circumstances that likely will not prevail next year.

Under the Federal Aid Airport Law, a maximum annual appropriation of \$100,000,000 is permitted. In the two fiscal years since the law's enactment, a total of approximately \$77,000,000 has been granted.

Airport money made available by CAA must be repaid or exceeded by the project sponsors.

The critical nature of the airport problem is being recognized as never before. Non-CAA construction is increasing, to add to the market.

AVIATION WEEK, October 27, 1947

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NEWS DIGEST

DOMESTIC

Arthur E. Gales, former assistant Secretary of Navy for Air, was named president, and Maj. Gen. Frederick L. Anderson was named vice president of the newly organized Hodges Research and Development Corp. of San Francisco.

Thomas Harbo, formerly vice president of TACA Airlines, has returned to active duty with the Air Transport Command with the rank of colonel. He was formerly a Brigadier General.

Seward Solomon, chairman of the board of Northeast Airlines, Inc., has received the Presidential Certificate of Merit for meritorious service in developing training for air crew and service personnel of the Ballantyne Revenue Corps and the Air Transport Command.

Trans-Canada Air Cargo Lines has been granted a Civil Aeronautics Board exemption to carry passengers on four scheduled all-Canadian flights between New York and Europe during November and December.

Air Express domestic shipments rose up 35 percent in August with a total of 294,967 shipments. Shipments for first eight months of this year rose 26 per cent ahead of the same period last year.

FINANCIAL

Mid-Continent Airlines, Inc., has approved the Carstairs Trust Co. as its transfer agent and co-registrar for its 51 per cent common stock.

Norfolk Aircraft, Inc., reports a net profit of \$240,573 for the year ended July 31 on sales of \$26,470,032. The profit was sustained after debiting a \$923,671 loss to Salisbury Motors, Inc., wholly owned subsidiary. Current backlog is \$23,905,000 and working capital stands at \$3,977,000.

Wisconsin Central Airlines is expected to file with Securities Exchange Commission this week a registration statement covering 175,000 shares of 51 per cent common stock.

FOREIGN

British European Airways will begin experimental helicopter flights this month to determine applicability of the craft for an extended air mail service.

ABA, the Swedish airline, has declined surplus of the two four-engine B-47 Flying Fortress transport planes offered since the end of the war.

Some Short jottings for airline operators and their crews



Heading for the last round-up...

End of a perfect day

The race has come—at last—to bid farewell to Short's Empire ("EP") Class flying boats. These polished old birds might well apologize, like King Charles II, for taking an unnecessary time-saving: the first 36 of them were ordered by Imperial Airways back in 1935. And only now, after nearly 10 years' service, have they been recalled for breaking-up. Considered totally unsuitable at all stages in their career, these Empire boats were put to rest and reliable on their last trip as on their maiden flight, and were still capable of many hundreds of operational hours.

It's not so easy

Then why take the "EP" Class boats out of service? They still had years of flying life before them. They were still efficient and economical. Perhaps, it was a matter of passenger comfort. The Empire boats got out because there have been even more efficient and comfortable aircraft to replace them.

Services rendered

"EP" Class boats flew on all the short Durban to Cape Town, a great link between Great Britain and the countries of the Empire. They were our ambassadors of the air. At the same time, they were employed for some of the boldest experiments in aviation history. For instance, the "Calcutta" and the "Cambridge" laid the foundations of regular British airmail services with their ten successful mid-flights between England and America in 1935. And a modified Empire boat formed the keel's backbone of the daring Short-Maple Composite service.



Facts and fantasy

The entire fleet of all boats flew more than 30,000,000 miles. And here are a few figures to play around with: London—the last of the Class and the last of the line to be broken up—flew 2,089,555 miles in 12,523 flying hours. Glasgow, first of the Class, flew 1,450,000 miles. This is equivalent to doing the 1,000 mile London-Melbourne run 155 times—once a month for 13 years. It also adds up to flying from England to New York 355 times—over 3 months for 37 years, or, taking its mean distance from the Earth as 23,500 miles, 11 complete trips to the moon.

Three smart types

What of the new air craft which must compete from now on with the formidable record? There's the Short Sunderland, and already it's the most popular flying boat in the world. As for the big air money, cost-effectiveness-minded designer, passengers get that feeling of ease and freedom from two-tiered arrangements, with such facilities as dining salons and cocktail bar, and airline operations proceed to reliable and economical running. Next comes the Short Sealand, now being run for B.O.A.C., not able to carry as passengers with full sleeping accommodation. And—the backbone of the firm—the Short Scotland, a 3-engine amphibian. An ideal type for charter companies, border lines and inland countries, the Sealand has all the comfort associated with flying Short.



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AVIATION WEEK

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INCORPORATING AVIATION AND AVIATION NEWS



GIANT SEARCH RADAR. Most powerful Air Force search radar is this Watson (AN) CP-26 developed for wartime fighter control and now used by the All-Weather Flying Center at Wilmington, Ohio, in testing Northern P-61's through thunderstorms. It provides altitude information along with range and azimuth data and has packed up a radar beacon-equipped P-60 flying at 56,000 ft. at a maximum range of 200 miles. Antenna weighs 22,000 lb. Scope has 12 controllers and is based on the clover. (Air Force photo)

All-Weather Flying Center Develops New Operational Aids

Progress report on Air Force group at Wilmington, Ohio, indicates benefits for civilian flying handling in research program.

By ROBERT BOLTZ

Development progress on the critical problems of all-weather operations at the Air Force All-Weather Flying Center, Wilmington, Ohio, in producing new equipment, techniques and operational data that are equally applicable to commercial as well as military flying.

Probably the Center's outstanding development though by now an outline is to be expected, is that of all-weather action directed by Col. Eugene T. Key (Aviation News, Feb. 20). Last week 54% of the airline completed 7% out of 680 scheduled round trips over its 353 mile route between Wilmington and Washington, D. C., in 14 months of continuous operation. This record was completed using equipment that is

new available to Civil Aeronautics Administration and commercial airlines on the New York-Washington-Cleveland where several hours are lost due to traffic control jams under adverse conditions and schedule cancellations during bad weather.

Instrument Flight. All flights of Col. Key's airline are made under actual or simulated instrument conditions from take-off to landing and carry full loads of passengers, cargo and military mail.

Radar traffic control (CPN-15) is used at both the Wilmington and Andrews Field, Md. terminals (Aviation News, Feb. 2). Landings are made with CCA as the primary system and the Sperry instrument beam landing system as a

supplementary guide check for the pilot. The all-weather airline doubled the CAA approved ILS count time ago as operationally inferior to the Sperry system both in signal stability and cockpit indication.

Among the new developments under way since this winter's previous report of the Center:

- First three-dimensional radar photos of thunderstorms that reveal eyes at lowest level and violent turbulence within a large thunderstorm. This development promises new aid in avoiding danger spots within thunderstorms particularly when the outline of the individual storm is obscured by frontal conditions. David Atlas, 25-year old civilian meteorologist at the center, developed the new radar picture process which adds only one ground to cross-sectional airborne scope radar equipment. Details of the process are still restricted pending patent proceedings.

- First accurate accumulation of data on flying in frontal type thunderstorms as a result of 1,100 penetrations of 75 distinct moderate thunderstorms during the past season. Operational experience of the Center's specially instrumented squadron of Northern P-61's commanded by Capt. Lon C. Knapel, indicated that best penetration altitudes lie between 5,000 and 6,000 ft. with good current technique generally found between 10,000 and 20,000 ft.

Experience also indicated the superior flexibility of thunderstorms on the basis of industry radio warning. One P-61 made 7 penetrations of a single storm at 10,000 ft. without encountering more than mild turbulence. On the eighth penetration at the same altitude it hit as updraft so violent that the pilot thought he had collided with another plane. Instruments in the P-61 indicated that it encountered one inch movement from 1 to 100's of feet from 17,000 to 24,000 ft. altitude in 14 seconds. The pilot lost control completely and alternated between backslung out and hits of consciousness while the plane was twisted and battered by the gust.

He was finally blown out of the storm out of control and guided to Wilmington by radar traffic control. The P-61 which is stained to 12 hours round operation had an 8 inch crack in its horizontal stabilizer and holes in the leading edge of both wings. Other

North American Building
New Supersonic Tunnel

North American Aviation, Inc., has started construction on a 25 in. diameter wind tunnel capable of testing models at speeds up to Mach number 4.5 (3600 mph. sea level conditions). The tunnel is powered after the latest German Kachet Tunnel of the same "resonated column" type.

A new vacuum is created in a 40-ft sphere on the downstream side of the test section. When the inlet on the upstream side of the forest is opened, air rushes through the tunnel and into the sphere, permitting about 15 acres of testing before atmospheric pressure is reached. The sphere requires about 10 min to evacuate in preparation for the following test run.

A 10-component (alt, drag, side force, pitch, yaw and roll) balance system will be used. A variable diffuser is mounted on the downstream side of the throat to maintain a substantially constant surface at the pressure and velocity of the upstream flow. The tunnel is scheduled to start operation in October, 1986 to provide research data for North American's Air Force guided missile project.

AVIATION CALENDAR

- [illegible]

INDUSTRY OBSERVER

► Cessna has successfully test flown a new amphibian for the Navy—the XJ302F. Intended primarily for air-sea rescue work, the plane is supposed to have a top speed of 250 mph, 14 passenger capacity and be able to make landings in four-foot waves. Coast Guard and Navy may not together for a joint order.

► CAAs-sponsored ILS systems are still being phased by interference from non-authorized broadcasting stations. Latent bug develops from harmonic interference from television stations that are relaying up to 10 percent of their total power on ILS carrier frequencies. Some commercial FM stations have had their operations delayed until March 1948, in some locations where they provided usage frequency interference with the ILS system. New airborne ILS receivers that eliminate this problem will not be in general use before next spring.

► Regular Boeing Stratolifter service between California and Hawaii is new under way by the Air Transport Command. ATC now has three Stratolifters and will use them in a combined cargo-passenger run three times a week. In an experimental hop a Stratolifter made the one-way trip in 9 hr. 38 min. with 16,500 lb. of cargo.

► Latest estimates are that from three to six weeks will be required for completion of CAA certification testing of the Conquestair. The transport's aerodynamics tests have been completed. Familiarization, accelerated service, and certification testing remain to be done.

► **Caution:** The NC-99, transport version of the XO-35, should begin test tests at San Diego within one month. Delay in flight tests, once planned for this summer, has been due largely to the growing out on the 35, of the 19 in dia three-blade Carbo-Wright propellers which will be used. Pending delivery of propellers the transport has undergone what amounts to "test flight by proxy" in that minor modifications in control surfaces and rigging have been made, based on the dictates of test flight data obtained from the XO-35.

► Indications are strong that Lockheed will be hooked up and in preliminary production of its very high XP-58 turbojet fighter before the prototype has flown.

■ **Messerschmitt** Mfg. Co.'s turbojet project soon will be shifted to the Aero to a joint cost engineering plant for aircraft development under a prime contract with the U.S. Navy. Work for the project will be opened at Wright field Nov. 15. Progressive bidders are General Electric, Packard, Allison, Wright, Pratt & Whitney, and Fairchild. All have had engineering study groups at Messerschmitt during the past month to inspect the engine and obtain bidding data. It is understood that Nathan C. Peier, who has headed the turbine engineering project from the time of its original conception at Lockheed, and key members of his staff, will follow the engine through final development by its new contractor. Reason for the switch is inadequacy of the Aero's facilities for the project. The Aero will obtain some of the work to be done, to be held by the Messerschmitt company.

► First flight tests of the light weight Altair take place under way at Los Angeles with an experimental installation in a DC-3 of Southwest Airways. Preliminary tests will extend over a period of at least three months. Designer Don Altair's original estimate of 65 lb weight for his device was belied in the end proposed for Southwest, which weighed 94 lb mounted and 51 lb, with wing installed in the fuselage.

► **Air Force** Air Materiel Command is now using a special course at Lake St. Mary's, 40 miles north of Wichita Field, for ground school collaboration trials on jet aircraft.

► Production of the Corcoran 3-16A could not be accelerated without a complete retooling, according to company engineering executives. Emergency expansion of the scheduled rate of 4.5 planes per month to 10 per day, would require a complete overhauling of the program at tremendously increased expense.

• Bureau of Aeronautics representatives have requested a private demonstration of the Koffelt NB-10 helicopter developed for the Air Force. The design features intermeshing counter-rotating rotors and is equipped with a hoist for the rescue of personnel from inaccessible areas.

◆ **Carter-Wright's** new four-cage cargo plane will carry payloads up to 40,000 lb. Total operating costs amount to about 7 cents per lb. mile.

FINANCIAL

Market Action on Two Uniteds Shifts With Industry Fortunes

United Aircraft common recalls previous situation but again selling higher than United Air Lines common. Historical relationships cited.

The changing fortunes of the aircraft and airline industries are reflected in the diverse market action of the common stocks of United Air Lines and United Aircraft on the New York Stock Exchange.

Once again, United Aircraft's common stock is selling higher than that of United Air Lines. For almost four years, up until recently, the air transporter equity consistently sold higher than its counterpart of the aircraft company. This represented the first time this relationship existed since the dissolution of the old United Aircraft and Transport Corp. in 1934 resulted in the formation of three separate entities now represented by United Aircraft Corp., United Air Lines and Boeing Aircraft Co.

► **Optimism Reversal-Fuel** to the so-called, second aquifers were in high favor while the air transport group held an uncertain investment status. This was particularly true as the airlines were yet in the development stage and forecasts were uncertain that they would not be as unprofitable, despite the new

This conception was soon changed and in a precipitate reversal, policy-makers were accused the second index by its commentators to an optimistic outlook for the airlines. This change in collective trends occurred in 1949/1944 and was reflected by the price of United Air Lines' common stock during the equity-adjusted period.

As the postwar prospects for the airlines were being desecrated financially, together in this group kept skyrocketing to new heights. At the same time, on many sides there were suggestions that the aircraft industry was strictly a war baby and never again would show the citizen power demonstrated at its peak. At times during 1945, the price of United Air Lines' common stock was twice that of United Aircraft, even.

• **Aircraft Securities Firm**—However, even in 1948 the optimistic outlook of

lately protected by the air transport group began to evaporate with the consequent sharp decline in representative classes. On the other hand, aircraft equities which had handsily participated in the preceding rally had less of a decline to negotiate. This trend continued until recent months when aircraft securities began to show firmer tendencies, bolstered by a more optimistic outlook. In contrast, the air carriers

The points of similarity between the two companies are rather striking. Both are leaders in their respective fields. The capital structure of the two companies are almost identical. This similarity may be attributed to the fact that the two are operating in the same line. However, Roper & Co. underwent a season of high volatility.

Market quotations in themselves are misleading. These prices must be related to basic earning power and underlying value. Despite almost similar quotations for the two classes of stock,

► **Total Resources**—United Aircraft has reported total resources of around \$185 million, while United Air Lines, with

the help of its recent financing, is estimated to have total assets aggregating some \$100 million.

United Aircraft has arranged for a \$75 million revolving bank credit. It also has a 5 percent preferred stock outstanding to the extent of 250,000 shares. The capital structure is completed with 2,678,781 shares of common stock outstanding.

United Air Lines also arranged for a term bank loan but in the amount of \$20 million. In addition, \$12 million in 34 percent debentures were placed privately with insurance companies. Following this, over \$4.775 (sums of 46 percent preferred) stock. At the present time, there are 1.845,085 shares of common stock along with 70,170 shares of management stock, which are on a par with the common.

• **Deferring Values**—While the market price of the two junior equities may be the same, underlying values differ. Reduced to terms of net equity per common share, United Aircraft shows a net book value of around \$35 per share compared to about \$18 per share for United Technologies.

An interesting sidelight to the market action of the two United stocks is the behavior of the companies themselves. In April 1944, the United Aircraft and Air Mail Act of 1944 the former United Aircraft and Transport Corp. was disbanded, firms were entertained that a promising aviation enterprise was being formed. The United Aircraft and Air Mail Act of 1944 the former United Aircraft and Transport Corp. was disbanded, firms were entertained that a promising aviation enterprise was being formed. The United Aircraft and Air Mail Act of 1944 the former United Aircraft and Transport Corp. was disbanded, firms were entertained that a promising aviation enterprise was being formed.

—Selling. Attach wall

Market Record of United Aircraft and United Air Lines

Years ended Dec. 31

1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2

1947* 1946 1945 1944 1943 1942 1941 1940 1939

United Aircraft	25	37	39	31	40	36	44	53	51
High	17	15	25	26	24	24	29	31	31
Low									
United Air Lines	29	54	62	56	33	20	37	24	16
High	19	19	21	23	18	8	9	22	8
Low									

Note: All fractions omitted
 * Up to October 15, 1997.

100% (100%)

Military, Transport Aircraft Shipments Increase in August

Personal plane deliveries hold to slight rising trend of previous months. Commerce Dept. report from AIA indicates.

A better than 100 percent increase in deliveries of military aircraft, with a smaller, but dollar-wise significant jump in heavy transport shipments highlight the August reports to the Department of Commerce.

At the same time, the 31 leading manufacturers of personal planes, according to the Aircraft Industries Association on September shipments, show a continuation of the small increase manifested in the preceding month's report. In September, the 31 manufacturers shipped 1,019 planes valued at \$1,894,000 or 1,019 planes worth \$3,662,000 in August.

► **Reverse Drop**—Primarily because of the great rise in military shipments—211 planes in August as against 104 in July—total manufacturing industry revenue in August rose 555,541,749 a 30 percent increase over the July income of \$448,771,551. Transport deliveries, up from 15 to 21, brought revenue in August of \$1,422,386 as against July transport shipment valuations of \$1,780,725.

Probably reflecting airline construction, building of transports dropped \$30 in August, pulling the value of the reported manufacturing decline down from \$215,382,976 to \$124,827,340.

The military buildup, however, rose in August to \$125,736,913 from the July figure of \$122,344,823. This, in contrast to the transport buildup, represents expected payments to be received by the manufacturers within the next six months. The lightweight building reported by the manufacturers—also for delivery within six months, is \$11,429,256, a gain over the July figure of \$11,298,804.

► **Employment Up**—For the first time this year, employment in aircraft plants showed an increase in August, although slightly—139,650 as against 139,600 in July. While general aircraft employment rose, production workers increased sufficiently to form the difference.

Engine manufacturing income in August showed an increase in August over July, although it was not good for engine manufacturers, while the number of engines shipped declined.

considerably—from 1,517 to 947. Revenue for August was \$23,799,200, and for July, \$21,328,836. As with aircraft, the difference was due to shipments to military customers. Military deliveries in August amounted 476 (386 in July) and non-military shipments totaled 511 (975 in July).

Building of engine manufacturers in August was reported as \$288,730,162, as against \$205,859,165 in July, with the military portions reported within six months being listed with the Department of Commerce as \$153,232,470.

Employment in engine plants was 31,645 in August, down slightly from the 31,143 reported in July.

PRODUCTION PROGRESS REPORT

All Manufacturers

Month	2 Piece	3-4 Piece	Time parts	Milins	Total	Value*
January	969	1,176	21	313	2,279	\$812,214,421
February	791	1,109	12	309	1,919	\$615,570,000
March	780	977	18	317	1,872	\$1,180,821,815
April	968	1,042	12	101	2,047	\$5,925,835,815
May	547	771	28	94	1,340	\$1,978,280,000
June	580	572	31	139	1,312	\$6,647,571,171
July	476	508	15	184	1,163	\$4,677,004,000
August	431	470	25	211	1,140	\$1,946,749,000
	5,961	6,620	185	1,090	13,861	\$675,235,032

* Includes military, state, overseas and other orders and all payments to military contractors during period immediately preceding date. Value based on "Price Per Unit" of the Bureau of the Census.

PERSONAL AIRCRAFT COMPANIES

Reporting to Aircraft Industries Association

	Shipments				Value			
	Jan	Feb	Sept	Aug.	Jan	Sept	Sept	Aug.
Aeromac	1,261	217	118	82	\$2,242,000	\$970,000	\$1,016,000	
Beech	964	391	178	178	\$946,000	\$1,996,000	\$1,118,000	
Boeing	194	4	6	6	\$60,000	40,000	45,000	
Cessna	2,245	191	121	121	\$2,444,000	\$1,700,000	\$2,000,000	
Engineering & Research	796	41	52	52	\$1,010,000	\$110,000	\$110,000	
Fairchild	53	4	5	5	\$10,000	\$10,000	\$10,000	
Lombard	1,076	118	113	113	\$2,714,000	\$2,714,000	\$2,714,000	
North American	942	N.A.	61	61	\$4,652,000	N.A.	\$4,652,000	
Piper	3,244	122	119	119	\$2,126,000	\$470,000	\$608,000	
Republic	703	18	18	18	\$2,160,000	\$7,000	\$7,000	
Stinson	2,152	360	365	365	\$1,719,000	\$9,000	\$754,000	
Taylorcraft	160	11	15	15	\$60,000	\$10,000	\$10,000	
Teasdale	105	N.A.	21	21	\$46,000	N.A.	\$46,000	
Engineering	105	N.A.	21	21	\$46,000	N.A.	\$46,000	
Total	15,771	1,239	1,219	1,219	\$91,049,000	\$1,304,000	\$1,362,000	

Notes: Boeing figure do not include AIA, PMA, and MAIA. Aeromac figures include shipments of L-16 to the Army which were 21 in Sept and today 121 for the year.

Boeing Still Hired To Meet Schedules

Boeing Aircraft Co. laid 242 work on for its Seattle, Wash. plant in a single day recently, a number far in excess of any previous single day's hiring for position and closely approaching hiring made up during peak employment days during the war.

Total Boeing employment had reached 14,049 at the close of the second day. Hiring will continue at the rate of 200 a week until total employment needs approximately 15,000, to meet increased production schedules on Stratojets, Stratojets and B-50 bombers.

"We are in a good position now to have a steady flow of parts," said Robert Kappa, factory general superintendent. "Having the parts, plus the enlarged working force, is crucial in the rate of production steadily increasing for the next six months."

Planes contain the better done as Pan American's first Stratojet and the seventh, eighth and ninth Stratojets. Meanwhile, the second Stratojet has made its initial flight, with the first Stratojet in the third month of testing. Two B-50 bombers have, completely positioned with all pieces, are now in operation.

Good progress is being made with the two Stratojet test ships, the B-50 bomber and with the N-547 bomber.

Engine tests have been completed on the Stratojet and preparations are being made for test flights. After tests have been completed, the USAF safety committee will look it over and make recommendations.

The first B-50 bomber has completed Phase I flight tests and was turned over to the USAF in Phase II testing. It has made its first flight with USAF crew members at the controls. After they have flown at about ten hours, the ship will be turned back to Boeing for Phase III flight testing.

Firms Merge

Accountant Products, Inc., largest industry in Washington County, Ohio, is now in the process of being merged with McQuay, Inc., of Minneapolis, Minn.

"The board of directors has voted for the merger and the plant, which during the war employed 1,200 persons in producing precision parts for airplanes, and now employs 215 people, will continue in operation until the merger is concluded within the next few weeks."

President James Layman and the new owners may continue to operate the plant, or sell it outright.

BRIEFING PRODUCTION NEWS

Glenn L. Martin Co. has been granted a Navy order for 12 more FB-56A Minuteman airplanes. This brings to 36 the number of this type of plane on order. Delivery on the original order of 24 will begin next year, while the additional 12 will be delivered in the first half of 1949.

Aviation Maintenance Corp.'s August sales totaled \$1,991,591, and brings sales for the first four months of the company's fiscal year to \$4,978,248. Approximately 90 percent of the August revenue was derived from aircraft overhaul, modification and conversion.

Pacific Aerospace Corp. has signed a contract with Smith Barney & Co. to perform all service and overhaul work on the contract carrier's R-7000 and R-3510 engines, engine accessories, propellers and instruments.

Lockheed Aircraft Service Inc.'s maintenance contract with Air Transport Company has been renewed through Nov. 30. LASC Master Air, L. I. has been added as independent radio aerial service, Avionics Radio Service, to its facilities.

Texas Engineering and Manufacturing Co. has signed a two-year contract providing five live-out wage rates to its approximately 1,000 employees. The increase becomes effective immediately, the other three months later.

Chance Vought Aircraft division of United Aircraft Corp. has been awarded a contract of work by Liberty Mutual Insurance Co. for completion of 1,340 518 cars before without a time loss industrial accident.

General Electric Co. orders during the first three months of this year totaled \$912,890,000, up 30 percent from last year.

Selle Aircraft Co. has opened a Washington office at Room 1504, 1825 Connecticut Avenue, N.W. in charge of Gust R. Stone, formerly of the company's New York office.

Allen-Chalmers Manufacturing Co.'s employment is up to 31,000, and several of its plants are hiring additional employees, although during the war company planners estimated postwar employment would fall to about 25,000.

United Aircraft Products, Inc., is moving its Allen Tool and Machine tooling division from Springfield, Ill. to the new facility at Dayton, O.

Harold Corp. has bought a new die casting plant in Chicago to extend operations now being conducted at other plants at Full River, Mass. and Los Angeles. The Chicago replacement represents an investment of \$750,000.

Crescent Aircraft Corp. delivered 20 new 190 and 185 two to five-place planes during September and stepped up production of the 170 and 140 to seven a day. The company, with plants in Wichita and Hutchinson, has increased employment to 700 and soon will get into production on an Army helicopter contract. The new four-place 170 is expected to be in production shortly after year's end.

Boeing Aircraft Corp. has cut Boeing production rate from nine to six a day for the winter months. Boeing is turning out one model 18 a day, including its Navy contract. October employment is 1,600.

Boeing Produces Ditchborders For Chicago Firm

A contract in excess of \$10,000,000 for the large-scale production of ditchborders by the Bell Aircraft Corporation for the Kitchen Kitch Corporation of Chicago is in the final stage of negotiation, President Thomas Howard of the Chicago company, revealed in Buffalo.

Mr. Howard described the large subcontracting transaction as "a long term manufacturing proposition with a vast volume of ditchborders to be turned out in Buffalo."

"It will be started immediately with a pilot run of 25,000 units for which all materials are available," he added.

There was no immediate comment from Bell officials as to how the large contract will affect its business operations.

Solar Develops Afterburner Unit

Solar Aircraft Co. has developed an afterburner unit for thrust augmentation of jet engines, described as applicable to jets of all sizes.

By injecting and burning fuel in the tailpipe, the thrust of the engine is greatly increased and may add the thrust necessary for instant combat action. Despite increased fuel consumption, the unit is of great value because it adds little to the weight.

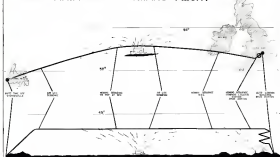


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TRANS-ATLANTIC AUTOMATIC FLIGHT



Plan Trans-Pacific Robot Flight Without Crew for Automatic C-54

9,000 roundtrip to England successfully completed by mechanical brain; device seen as aid, not substitute for human pilot.

By ROBERT HOTZ

A previous triumph when flight across the Pacific without a human being aboard is in prospect for the "Robot E. Lee," USAF automatic C-54 that last week, returned from a 9,000 mile automatic trans-Atlantic roundtrip between Wilmington, Ohio and London-Norton, England.

Biggest question now, on the proposed Pacific flight plan is whether top Air Force brass will authorize possible loss of the automatic equipment in order to prove beyond all shadow of doubt the reliability and schedulability of automatic flight. Even after the testimony on the "hand-off" character of the trans-Atlantic flight by RAF and civilian witnesses about the automatic C-54, some sceptics remain.

► **Milestone Flight**—The automatic trans-Atlantic flight entails a milestone along a nearly solid that begins with the first attempt at automatic flight. Current plans begin with creation of the automatic flight system in 1945 to Col

Don Kelly, founder of the Air Force Air-Weather Flying Center. First model of automatic flight equipment was flight tested in a B-24 and C-54. Equipment in the "Robot E. Lee" is the second version—completely handmade by Air Force technicians except for standard aircraft instruments used as computer units.

The automatic equipment now weighs 700 lb. Construction has been purposely heavy to facilitate easy access to the equipment for modification and maintenance. Project officers estimate that equipment for any automatic sequence could be designed and manufactured light enough for standard aircraft operation.

The version has been flying since the middle of 1945 and has been undergoing constant modification and improvement. Inspection of the equipment after its return to the Air Weather Flying Center at Wilmington last week, indicated major improvements since this

winter participated in one of the first automatic cross country flights from Wilmington to New York last January.

Among the new features are:

- **Automatic propeller synchronization**—Air position indicator, as developed for wartime B-29 jet, has been substituted for the air engine counter from a German V-1 bomb launch that was formerly used to measure the dead reckoning navigation sequence.
- **Constant approach speed** is now automatically maintained within plus or minus two mph. The desired approach speed for any given aircraft can be preset into the engine mechanism.
- **Elimination of heading by autopilot** on the heading beam during final approach. Autopilot is now also keyed to the magnetic heading of the beacon and when it strays from the automatic signal returns to the magnetic heading which makes for a gradual correction to course rather than violent hunting for the correct signal.
- **Automatic nose wheel steering** by heading the nose wheel steering mechanism to the remote beacon signal.
- **Sequence selector** builds automatic equipment in divided into three principal types: standard aircraft heading instruments such as airspeed indicators, radio altimeter, automatic radio direction finder, etc., which provide information for the master sequence selector; the sequence selector, or "Automatic beam," which translates information received from flight instruments and

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automatic control indications that fly the aircraft according to directions received from the sequence selector.

The accompanying chart of the trans-Atlantic flight indicates the sequence breakdown of automatic operations from Enroute flight was completely automatic with the exception of external landing at Stapledon, Newfoundland, land, necessary because ILS is no longer used there by the Air Force due to its inaccuracy even now.

The automatic phase is also coupled to the Spinny Magnesyn landing system which the Air Force prefers to ILS because of its superior operational reliability. Eventually it will also be able to land automatically on the precision radio beam of GCA.

Automatic take-off begins with the plane towed manually to the end of the runway and pointed along the runway magnetic heading. A single button is pushed on the main control panel activating the starter sequence selector. All flight data including cranking altitude, power settings, magnetic course heading, radio frequencies of landing stations and frequencies of automatic landing is shown at destination are present on the sequence selector.

► **Destination Unknown**—As far as distance against "holding" on the part of the standard safety crew, only the KLM steward aboard, Wing Commander R. V. Hall, was aware of the plane's final destination as the trans-Atlantic flight. Pilot, Capt. Thomas Wells, and navigator, Capt. B. J. Whittington, were given only the landing frequency of the landing station to be used at Enroute and magnetic heading of the runway at their destination.

After pushing the activating button a pause ensued sufficient to allow a crew to leave the plane before take-off begins. They are, however, broken related and direction pushed forward to take off power automatically an electrical action from the sequence selector. At 50 ft. altitude the radio altimeter rings a circuit that returns the gear and reduces throttle to climb power. At 1,000 ft. flaps come up. Climb power and runway heading are maintained until the pre-determined maximum altitude is reached after which power is reduced to cruise and the last navigation sequence begins.

► **Navigation Sequence**—Navigation sequence involves a fixed selecting device using one of six position indicators developed for wartime B-29 use, and bearing on radio or computer locator stations. These two sequences may be used in any desired combination for any desired course or range.

As a preliminary to the trans-Atlantic flight the C-54 flew a 2,400 mi. topographical course automatically landing only at its final destination. Only land in the automatic C-54's range is the

nearest of 24 it can reach. On the trans-Atlantic flight a slow-revolving sequence was used and the plane came within landing distance of the North Atlantic weather ship's radio. After learning on the weather ship another slow-revolving sequence was used to bring the plane within landing range of the BBC broadcast station. From BBC heading, navigation switched to another landing sequence as the trans-Atlantic computer locator station. On arrival over the trans-Atlantic station the ILS began. By the computer mode activated the approach sequence.

The plane automatically orbited the computer-locator station in a four mile circle, power was adjusted to provide a constant approach speed and would land at a distance of 2,000 ft. At that altitude the radio altimeter switched control to the ILS locator at five

feet and landing was completed, or, if necessary, released automatically. On the trans-Atlantic flight it would have been able to eliminate both the dead reckoning and weather ship heading sequence by establishing Wiley Post as he crossed the world who flew in, perhaps on ILLC over Newfoundland and then on it across the Atlantic.

► **Coded Card Data**—Looking to the future, Col. Kelsey believes it will be possible to develop standardized data for any given flight that can be fed into the computer sequence selector on coded cards or tape. The commercial operators over regular routes this data can be fitted into the control system so that pressing a button for each stop along the route would then necessary sequence data to the sequence selector and bring the aircraft over its destination automatically.

Spokane of the automatic C-54 finally select that the long distance automatic flights are nearly dimensionless of the system. Their own interest is in what components of the system can be adapted for standard military and commercial use is relevant. The pilot of his own growing manual load. The automatic sequence are intended as a supplement to the pilot not a substitute for him. By selecting points of each of the manual detail of approach operations, particularly during critical operations, of take-off, approach and landing, it is hoped to save less time than to think and concentrate on primary decisions. Instead of being bogged down in operational details of operations. Most accidents result from errors in judgment rather than mechanical failure.

► **Position Features**—There are several features of automatic flight that are remarkable. Automatic power settings, altitude, a single button control for the four throttles, four mixture controls and four propeller controls that now require manually re-adjusted manual movements to change power settings. Automatic power controls are according to the pre-determined optimum for any given set of engine will also result in better engine performance than manual operation. The automatic system is also a complete failure on take-off. It does not have automatic propeller feathering devices.

Automatic ordering of compass location stations seems to solve, as a preliminary over the current building procedures in instrument approach mode. Automatic navigational instruments using either ILLC or VHF ranges for distance operations and heading, radio and ILLC radio for navigation operations are also feasible. All of the automatic control devices back in the "Robert E. Lee" have the added advantage that they "fall out" since it is possible to take over manually immediately at any phase of automatic flight.

Automatic Log

Although the trans-Atlantic flight of the "Robert E. Lee" has been its most published operation it has the following log of computer automatic operations:

- **from Atlantic to Washington**, 1,110 miles, Dec. 30, 1945.
- **New York to Washington**, 510 miles, Jan. 2, 1947.
- **Long Beach, Calif. to Washington**, 2,000 mi. Jan. 12.
- **Washington to Pomona, Calif.**, 100 miles, Feb. 10, 1947.
- **Washington to Reno-Norfolk, England** and return via Stapledon, Newfoundland, 9,000 mi. Sept. 21.

Notable report: Wheels and flaps come down and the plane automatically bracketed the bottom beam, maintaining 2,000 ft. until the ILS glide path transmission were received.

C-54 has taken its course from made along the glide path to a three point heading rather than the conventional wall wheel landings on traffic gear. This is necessary because a micro-second in the wheel only power to life, cutoff, applies fuel, and brings the plane to a dead stop on the runway.

The sequence selector system is sufficiently flexible to be almost as flexible as the sequence selector, being merely the simplest available one. The same automatic sequence can be achieved by using the VHF compass and distance measuring system system less when its automatic

New Regulations Required for High Altitude Transport Design

Boring engineer states requirements should follow progress, rather than anticipate or force it.

In the continuing consideration of the necessity to revise existing civil air regulations pertaining to transport aircraft, an additional factor is being stressed by engineers responsible for recent, past and future transports to operate at high altitudes.

This whole problem has been reworked up by M. J. Vitek, Aeroelasticity Research Engineer at Boeing Aircraft Co., who points out that when the basic civil air regulations for transport were framed years ago (they have since been revised but never completely rewritten), aircraft for high altitude operations were little more than design studies.

Vitek told the high altitude symposium recently sponsored by Boeing that regulations would start development while on the other hand, level rules would permit unsafe conditions.

► **Development Traced**—Tracing the development of the relatively new field of high-altitude air transportation, Vitek stated that until the Boeing Model 307 Stratoliner was put into operation by TWA in 1930, no established regulations existed for high altitude plane design.

When the design of the craft previously was established over a period of years, with each step agreed upon by a civilian representative of the State Department at Air Commerce. The same consideration, producing an impasse and balanced design, required many compromises with other established regulations.

Vitek points out that present-day regulations require that each design would have undoubtedly progressed its success and resulted in a greatly reduced plane being produced—with no accompanying loss of valuable knowledge. This, implies Vitek, leads to the conclusion that the development of regulations requires that this follow design progress rather than an impasse or force it.

► **Performance Requirements**—Direct effect of high altitude operations on the increased speed in operation, on speed, which began to approach the sonic range. Regulatory limitations for design speeds have been developed in cooperation with the industry, operation, and the FAA, and have been previously established on an interim basis

to cover only speeds below a Mach number of .65. Use of any higher speeds is to be considered upon individual case evaluation based upon available experience and knowledge.

Requirements have been presented to specify exactly that for pressure speed criteria. Yet design criteria speed shall be sufficiently greater than V₀ (ignition speed) to provide for low-altitude speed increases, likely to occur as a result of severe atmospheric disturbances and that V₀ (design speed) shall be greater than V₀ to provide for safe maneuvering limits and cruise speeds according to V₀ (V₀ is speed in special cases, then generally complex freedom to designers and engineers advance developments).

Other performance considerations of high altitude operations include design for high rates of descent, balanced power plant design, and efficient operation of engine turbine which are necessary as integral part of high altitude planes.

► **Structural Requirements**—The effects of gusts and maneuvering load conditions require further research and knowledge, but the flexible criteria already established appear reasonable.

When the design of the craft has been generally accepted as a basis from which to proceed. Such additional strength incorporated also incorporates of CAR is included for purposes of accurate calculation and decision making. Current requirements include combining maximum lift right loads with maximum relief valve pressure loads, and a speed check for pressure above 11.5 times maximum actual value pressure is required.

Other important concerns are design for preventing cabin leakage, material fatigue, maintenance for doors and windows, locks, sealing and venting of cabin compartments, seals for cable and tubes, conduits, and general structural deterioration.

► **Equipment Regulations**—High altitude design has opened a complete additional series of items for study. These include electrical systems, controls, engine exhaust, radioelectric communication systems, cabin pressurization sources, new electrical needs, and emergency equipment.

These considerations for these items is that the overall design should

operate with the highest degree of reliability, necessary, to avoid creating conditions hazardous to the plane or its passengers. Unless rigidly guarded against. Vitek says, any airplane may be only offered to the point where it is hazardous to operate in order to require its required standard of efficiency.

The goal of aircraft designers is to create an airplane with the required degree of reliability of its individual components which would make necessary the presence of numerous safety devices. The safety of an airplane system which only serve to complicate the design, in case of emergency, and add little to the safety of the plane.

Requirements regarding installation of such items should be avoided at all costs since once adopted, it is practically impossible to have them removed for many years after they have served their special purpose.

► **Flight Operations**—Operation of planes at high altitudes require an entirely new technique. Planned flight patterns must be carefully planned and executed because of the large fuel consumption in climbing to altitude and the amount for carrying adequate reserves which are necessarily associated with high altitude flight over long ranges.

It is expected that high altitude operations will become commonplace because of the advantages it has to offer in additional speed, lower costs, increased comfort, and freedom from a majority of adverse weather conditions. Reliability of design will assume more importance than ever before, because the industry is in a strong position due to its comprehensive knowledge resulting from recent war operations. Regulations must be kept flexible to allow the best possible utilization of balanced design and efficiency.

New Technique Devised for Combustion Control

A technique for improved combustion control in solid fuel rocket motors is the design of this type of jet device—has recently been disclosed.

Burning of hybrid solid propellant specimens (such as nitrocellulose and aluminum powder) in a metal container fitted with a glass window brought new understanding of how solid propellant burns.

As explained at a recent meeting of chemical engineers, it was observed that the surface of a burning lump of fuel in the container, subjected to gas was constant. Beyond that was a zone of burning gas evidenced by a halo of brilliant light. Increase of pressure within the container forced the burning gas back towards the surface of the powder, resulting in rapid burning.

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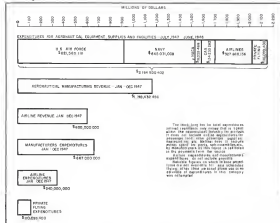
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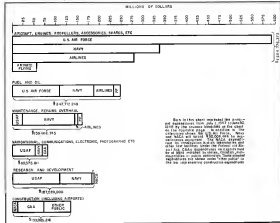
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AVIATION WEEK, October 27, 1947

Who Spends . . .



And What They Buy . . .



Aviation Market Hits Two Billion Dollar Rate—And Still Is Going Up!

When Industry Payrolls Are Added to Total, Expenditure Exceeds Three Billion Dollars

More than two billion dollars will be spent for aircraft, equipment, planes, engines, facilities, and various supplies by all buyers, Government and civilian, in the fiscal year ending June 30, 1948, according to an Aviation Week analysis of the aviation market. This represents an increase of 666 percent over similar expenditures in 1939, the last previous aviation business year before foreign war orders.

Current calendar year manufacturing industry revenues will be an estimated 300 percent better than in 1939, and airline revenues will show an increase of about 700 percent.

The estimated expenditures in the present fiscal year does not include pay-

ments of the manufacturing, transport or facilities operations industries. Adding payrolls, the total would now exceed three billion dollars.

The Aviation Week position is based on confirmed orders for seven months for airlines, as revealed by manufacturers and eight months for private flying, plus official government allocations of current appropriations. Expenditures for parts, sub-assemblies, etc., of the engine, engine and propeller industries are not included in the overall total in this money down-up in the end selling price of the item and thus is reflecting on the estimated expenditures of all buyers.

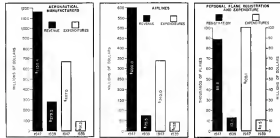
As thoroughgoing an assessment of

the market in other industries has not attempted, but aviation's comparative success in industry can be roughly judged from gross sales and percentage increases of a few of the country's greatest manufacturing industries.

Industry	1947 Sales	1948 Sales	% Increase
Automotive & Aircraft	\$1,100,000,000	\$1,100,000,000	0%
Chemical	\$1,100,000,000	\$1,100,000,000	0%
Electrical	\$1,100,000,000	\$1,100,000,000	0%
Food	\$1,100,000,000	\$1,100,000,000	0%
Textile	\$1,100,000,000	\$1,100,000,000	0%
Transportation	\$1,100,000,000	\$1,100,000,000	0%
U.S. Air Force	\$1,100,000,000	\$1,100,000,000	0%
U.S. Navy	\$1,100,000,000	\$1,100,000,000	0%
U.S. Army	\$1,100,000,000	\$1,100,000,000	0%
U.S. Coast Guard	\$1,100,000,000	\$1,100,000,000	0%
U.S. Marine Corps	\$1,100,000,000	\$1,100,000,000	0%
U.S. Air Force	\$1,100,000,000	\$1,100,000,000	0%
U.S. Navy	\$1,100,000,000	\$1,100,000,000	0%
U.S. Army	\$1,100,000,000	\$1,100,000,000	0%
U.S. Coast Guard	\$1,100,000,000	\$1,100,000,000	0%
U.S. Marine Corps	\$1,100,000,000	\$1,100,000,000	0%

The aviation industry has most often been compared to the automobile industry, but generally overlooked is the fact that aviation manufacturing is roughly one-eighth the size of the goods automobile manufacturing industry.

(See The Aviation Week, page 7)





Tailor-made Props Fill Odd Needs

Special requirements keep Sensenich constantly producing variations in basic propeller designs.

By LESLIE J. THING
Chief Engineer, Sensenich Corp.

Problems in designing propellers for special installations such as the wadjet Goodyear racers, experimental "mule blade" "goat" propellers, blades for helicopter tail rotors and propellers for new experimental personal planes make no usual demands on an engineering department, but are compensated for at least partially by, extending variations from normal design work.

For example, a week before the 1947 National Air Races at Cleveland the writer received a call from a Goodyear test engineer who complained that his Sensenich propeller did not power his engine to produce its full rpm rating. Some Propeller Work—Yit is the first test of the Goodyear, William Remond, using a propeller of standard design on an identical engine, ran the race. Moreover, similar Sensenich propellers on Tim LeVer's two planes, piloted by El B. Salama and LeVer, pulled them to third and fourth places, respectively.

The distressed customer who turned to the propeller which discussed, at Steve Winona's place, subsequently went to use apparently had overestimated the speed of his plane. The aerodynamic soundness of such engines, plus the extra power which each customer could obtain by making his own propeller and other refinements to give additional speed, directly affected the rpm values achieved.

While all of the Sensenich propellers ultimately used in the Goodyear race

had the same blade shape, characteristics and diameter, their pitches did differ at the option of the customer, depending largely on status of rpm which they wanted to use varying from 2,600 to 3,100.

Generally speaking, the optimum tailrotor propeller is one of large diameter and low pitch, while the optimum cruise propeller is of smaller diameter and higher pitch. The Goodyear racer propellers were one side of the best compromise between takeoff climb and top speed characteristics.

A 3-6 propeller was used to turn its high angle of attack operation on a restricted rpm, compressing the low angle of attack rpm (goat) operation. The propeller was of slightly larger diameter than would be considered most desirable for top speed, but considerably smaller than the most advanced racer use for takeoff and climb.

Generally speaking, again, the design must be well fitted to the engine question before selecting a blade configuration for a racing plane.

- What type race is to be run with the airplane?
- Will good acceleration on takeoff and at points be of particular benefit?
- Is all top speed as important as good climb?
- Is size and shape of the engine such that potential all-out speed will be achieved?
- If not, what top speed will be achieved, so that the blade pitch may be selected to permit the engine to produce the desired rpm value?
- If all-out speed is the prime consideration,

then, low severity may takeoff performance be provided, still permitting the plane to become airborne in an allotted distance?

Tight checks on propellers which incorporate minor variations from the optimum shown by analysis should be done where possible, with modifications made as indicated by these tests.

► **Variable Pitch**—The variable pitch propeller can somewhat lessen the critical nature of the blade design. However, it is not always the best designed additional apparatus, to provide a more desirable installation. The variable pitch feature permits selection of a more favorable blade pitch distribution.

It is possible, that, whereas the natural tip speed of a racing propeller may not indicate tip compressibility limits, the highest tip speeds may be critical. This point should be checked. The angle of blade freedom, airfoil sections angle of attack, etc., upon the aerodynamic compressibility characteristics should be analyzed against available data.

The location of the race and probable ambient air temperature during the race, may have some bearing upon the selection of a maximum propeller diameter and other features of blade design which may affect the compressibility characteristics of the blade.

Structural considerations must, of course, enter into the final selection of a blade design.

► **Power Requirements**—The engine builder and the propeller designer are providing data with an accurate airbrush of the airplane's power and an speeds is possible, assuming reasonable values of propulsive efficiency. This is particularly true in the case of selection of a fixed pitch propeller, since the ultimate

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General Electric Co., in order to expand its organization and facilities, is seeking potential users for nonferrous and increased electrification of American industry, has created integrated manufacturing units along broad product lines and is assuming authority and complete responsibility to management closest to the job.

H. D. Kelcey, managing engineer of the Aircraft Gas Turbine Engineering Division, at the Rover Works has been named manager of the new Aircraft Gas Turbine Division, and Nicholas M. DeChenna, manager of the G-E West Lynn Works, is named manager of the new Motor and Instrument Division.

A. F. Dickerson, manager of the Apparatus Department's Lighting Sales Division, becomes manager of the new Lighting and Rectifier Divisions. Other new units of the Apparatus Department and the names of the managers are pointed out.

[illegible]

- * **FU-Wayne Hall**—Fractional-hermaphrodite
Major D.D. Price M.E. Loefer, Specialty
Transformer and Mutual Circuits, 98, C
Wichita
- * **FU-Hall Mass**—Transformer and AI

and Product Division Robert Farnon, appointed Anthony E. White, national manager, including members of the Division Division in memory of Irving Thomas Farnon White.

[illegible]

to culture commercial actions.

***Commendable Values.**—Harvey Tule, Inc., Seattle Washington D C manager has been awarded Los Angeles contract of the value \$700,000 by the city of the Washington office of U. S. A. NORTH COMPANY corporate managers in the construction of the bridge.

management is the corporation is that Dean Frank Winton has returned to the company as chairman, managing a position he held during the war years. W. C. Wain, general sales manager, has been appointed manager of the New York office.

• **U.S. Commerce Dept.**—The Trade Service Division of the U.S. Commerce Dept. has been named director of all industry data departments. E. S. KOTTE, who has been manager of the industry's planning, the office, was named manager of industrial sales.

■ **Inventory Reduction Battle**—D. Ted Lohmeyer has been appointed senior representative of the American Petroleum Industries Committee.

• **Valentine Mangy**, Eugene Ore.—J. Paul Albert, director of sales was announced in the past of assistant to the General Manager and E. G. Knollinger chief of general vocational power plants engineering business division of sales. Edin Pierre, Director of Oregon White Corp. has joined Mangy as

• **Lorillard Aircraft Service, Inc.—**George H. Smith has been appointed manager of the field service department. During the war Smith served as a technical representative with various divisions of the AAF and the

AERONAUTICAL RESEARCH PLANT

Closeup of the four-blade Sorenson paddle used on the Assenault Research Foundation's quiet Stream plane shows the relatively conventional appearance of the prop. Two of the three key men in the research team are discussing test flights with the pilot in the other plane. Left to right: Prof. Lynn Rodgers, Harvard University Business School, Eliot Clark II, Scott of Wings Airways, New York, Mass., and Prof. Otto Sorenson, Massachusetts Institute of Technology. (Small Wings Airways Photos)

Plane Noise Reduction Progress Achieved in Research Project

Experimental rig of Sensenich propeller on Stinson Voyager demonstrated for AVIATION WEEK Editors.

Re: ALEXANDER M. SMITHLY

Substantial selection in applicants exist; insurance already achieved by Accredited Research Foundation, Inc. Boston, in preliminary status of a continuing NSCA financed doctoral program, offers new essential encouragement for the filtering personal plan.

Last week Robert Wood, editor of *AMERICAN WEEK*, and the writer, witnessed a slight demonstration of a four-blade fixed-pitch Schemm propeller turned slowly by a Franklin engine with induction gun, mounted in an other wise conventional Stinson Voyager.

At that time the plane was not equipped with one of several special snuffing devices which are to be tried with it, and used only the conventional (reflex) herpessophage; used which is attached with the machine.

► **Note Level Reduced**—Total noise level from the experimental plane was very appreciably reduced from the noise level of a conventional Stearman Vengeance which was flown in comparison. Flights were made at Wiggins Airways Base at Norwood Mass., with Joseph Caruso, Worcester resident, piloting the standard

- Performing similar tests with the plate using an excimer-coagulation device designed by Prof. Sauer.

Once the development leaders ascertained that they have no airplane whose name is not offensive, the program will move from the Wiggins box, to an experimental airport in Boston, for a still "fuel combustion" if it can be operated in this area without obstructing undesirable attention from nearby residential areas with its noise. The project will be considered successfully completed.

* Guard Engine—Guard engine used in the experiments is Franklin model No. 14C-154B1, which was "discontinued by the American Bureau of Standards."

involved in the Newfoundland project is situated at the assembled motor plant at Syracuse, where it had been prepared for a ground engine test project in a Belmar Cruise Se. which was later abandoned. It has been doubted to the success progress by the company. Reduction factor of the gear is 20:1, and the ground engine weighs 44 lb more than the conventional Franklin 170 hp engine which it replaced. The ground engine is essentially similar to the Franklin light-engine engine which develops 190 hp at 2,000 rpm.

Losses in the increased weight is compensated for by increased propeller efficiency made possible at the down-propeller speed. For example, at full-takeoff power the propeller is only turning once at 1,450 rpm, and for cruising it slows down to 1,200 rpm, although the airplane maintains a 125 mph cruising speed indicated, equivalent to its normal performance with constant

tional engine and propeller. At the full helicopter engine rpm of 1,000, the propeller would only be turning at 1,500 rpm.

• **Skyplane Designer**—Paul Kruppa, well known as the designer of the two-cooled two-place jet-wind Skyplane, and the earlier one-people experimental Ford plane, points out that the noise reduction made possible by use of the ramjet-like propeller, now requires additional muffling of the engine, which was not required in the conventional airplane, propeller noise of the conventional airplane drowned out exhaust noise below a certain intensity. But noise of the exhaust now is now apparent, with the quieter propeller.

The Morton Company, although it has been making silencers for firearms for many years, has dismissed previous attempts to develop superior engine mufflers by pointing out that they were not as close to a quiet place as the car. One of the reasons the Morton Company's silencer is superior is to be so effective that engine noise will be virtually eliminated. This will be valuable in the test of various propellers, but is not regarded as a practical outlet for commercial personal aircraft, because of its weight (26 lb. per unit of 48 in. for the pair). However, the other part of silencers, wings of each of its wings, is made of aluminum. All the engine noise can be directed into one element rail, which will effectively reduce them to an acceptable level, without a serious weight penalty.

Prof. Koppen's engine cooling device, which performs the dual purpose of cooling the engine, and dissipating the sound waves, uses a "straight through" tube, which is able to use a "muff" of fibreglass, because of the low temperature of the exhaust air due to the cooling effect. The Meevo devices use a "muff" of stainless steel combined with a pattern of baffles and holes through

• **Commercial Model**—Unlike the government NACA with quiet turbine and propeller, the commercial model is a turbopropeller engine, as in the case of the Langley Field V-8 Aircraft Engine. Research phase appears relatively acceptable commercially as it stands. Its four-blade propeller is not sufficiently unlike conventional two-bladed to make any great difference in appearance, and would pass unnoticed except for careful inspection that it is the same diameter, and has apparently double the blade area, making it possible to transfer horsepower into three times pounds at much lower propeller rpm. The modified units although not yet installed, are not of the type that can be easily spotted.

In addition to the quickness and quick takeoff and good climb characteristics noted in the flight tests so far, pilot Scott reports an appreciable "looming" effect of the four-blade when in landing approach mode, because of the addi-

tional drug which its slow turning disorients. A short demonstration flight exhibited the characteristics as noted on the water, and Prof Bollinger afterwards made a very short landing without fuss, as further indication of the "bird."

► **NACA Flounders**—While the \$45,000 NACA project on which the research team is now engaged, is devoted solely to replace noise reduction, the group is already planning for other research projects, which are all united at the single goal of making the personal airplane a more useful, reliable vehicle for an essential mass market.

Cooperation by manufacturers in the project, has made possible advances, which would not have been possible in a commercial research project with an equivalent investment.

Because the duration of the grant expires and the silicones, the non-polymer foundation has removed the Sinarach propeller in a base of labor and material used, without expensing cost, and will get the other experienced population on a similar base. Canoe is providing the use of the Wagon Arrow shop and hanger storage, and is supplying mechanical labor and controls on a one base. And the airplane has been donated to the foundation for the experiments by Consolidated Valve Aircraft Corp. and the Institute's semi-annual technical facilities are available for studies if needed.

Plane Repair Service Offered by Grumman

Cummins Aircraft Engineering Corp., Bethpage, L. I., has initiated a commercial aircraft maintenance plan for corporation and privately owned twin engine and high power single engine airplanes.

According to William L. Sathes, organizer and director of the program, the entire facilities of the Crampton organization are at the disposal of the new section, enabling performance of high standard maintenance and repair work of all types.

Since this service is offered primarily as an accommodation to private owners, no major crash damage repairs are undertaken because of a lack of equipment parts and sufficient space to carry out such tasks. Replacement parts will be fabricated on request but the cost of such items is considered prohibitive in most cases.

★ **These Plans**—These classifications of maintenance have been considered. First is a comprehensive service in which Grauman takes complete charge of all work, including inspection of engines and hull, complete removing the rig to ground and any place which its condition considers unsuitable; second, a

modification of the former agreement under which the Corporation does no maintenance and eventual, with the plant operators acting as inspectors (Guinean employees are the only members permitted to do repair work on their field) if owners request the arrangement, third, a service for owners who desire fuel and oil facilities and routine periodic checks on their plants which are annually bargained in other locations.

To facilitate the use of the airport by private pilots, the Corporation has arranged for its full taxi operation, with the control tower manned from 7 a.m. to midnight.

Liquidators are not encouraged to use the Commons field, due to the direct traffic problem they produce when faster access is in the approach pattern. Only 90 octane gas is available and is considered essential for low power engine, and the Corporation is short of personnel to handle the quantity of business which would result from an influx of small craft.

► **Tripes Vase**—This new service is not restricted to any particular make of car, cost, and covers reimbursement on such plans as Air Transport Association's (ATA), Travel, Inc.'s Lodestar, New York Synchro's Wagon and Mailbox, W. Avelil Harrison's Beachcraft, Car Wood Industries' B-23, and Vincent Astor's Mailbox.

Crumen Field is usually close, has clear approaches and good runways. Longest one, 5,000 ft. (hard surface), is supplemented by two shorter paved strips. Lights are available for night operations. Flares are handled carefully by ground crew and the hangars are kept close and free from any type of litter.

AVERAGE HOUR FLOWN FOR AIRCRAFT IN USE
 IN VARIOUS TYPES OF FLYING
 ENVIRONMENT, UNITED STATES, 1986

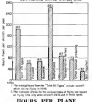


Chart gives graphic summary of losses of sailboats reported as missing to quarantine units and 17,580 planes owned by CAA. (Arlington Work, Oct. 20) *Airline planes are included.*

AVIATION WEEK, October 25, 2007

Ryan Will Launch New Nylon Program

Fox Acoustical Co. will launch its Navon sales program with new slogan and cube comfort featuring a "2045 model" that will peg a benchmark advertising and sales promotion program.

Outstanding change, noted in first of '45 units just NCV and delivered to LeRoy H. Bowman, Texas distributor, is Ryan's adoption of a complete automobile-type flash-die-cast wire in place assigned to Bowman. North American delivered Nixsons with instant slams—new flash.

But as a withholding details of '45 model "new features," to true pol-
lady with advertising. It is only to an-
ticipate that they will include correc-
tions of problems encountered by some
owners of planes produced during North
America's ownership—cabin insta-
lation, soundproofing, and some engine
and structure discrepancies.

Already Ryan has set up at San Diego a Navion assembly line, now filled with planes assembled from the parts inventory acquired from North American, and again soon will be ready to begin complete manufacture of the newly acquired craft.

Reorganization of the Navtex distribution organizations originally set up by North Americans now is under way, and Ryan announces that six distribution hubs have been appointed to date to serve primary market areas in major sections of the country.

These are:
 Mailbox Air Service, Tenthred Air
 Terminal, N. J., (Robert Hewitt) for
 metropolitan New York area, General

seemingly rare, for example, in the
H. Brownian) from Texas, Howard Ave-
ron, Inc., Panama, El Glara C Howard
Chicago and adjacent areas of Illinois,
Indiana, Wisconsin, and eastern Texas
(Howard, 1960). It is also common in
Kear's (unpublished) Illinois, western Mis-
souri, southwestern Indiana, and west
ern Kentucky. Var's Air Service, St
Cloud, Minn. (B. C. Vossler) Minn-
ota; N and S Dakota, southern Wis-
consin, Palo Alto Airport, Inc., Palo
Alto, Cal (Harry S. White) California
north of Berkeley and San Jose
Chapin, and western Nevada, Ross
Ammann Co. (regional history
unpublished) southern California and Ar-

Packets Unavailable

Office of Foreign Liquidation. Commissioner reports that surplus Fieschold aircraft mentioned in the Paris Letter of Arrangements, Warr, Oct. 20, as being available near Algiers were model UC-61s, instead of UC-62s.

BRIEFING FOR DEALERS AND DISTRIBUTORS

REGULATIONS FOR AIRCRAFT NOISE—CAA Administrator T. F. Wright told the President's Air Policy Commission last week that evidence of the increasing noise from aircraft was causing law suits against existing airports and a haphazard placement of new airports at the "very places where they would be most audible."

Other advocates of new solutions for airplanes including Administrator Wright stated they have based their arguments on the common-sense assumption that new airplanes would be more acceptable and generate a greater return on investment than older aircraft. It is apparent that there is a growing trend in government thinking to spend money on new, high-tech equipment, rather than on older equipment. This trend is not necessarily a bad thing, but it is a general, imprudent assumption for most federal investments. That it is very probable that this will not be necessary, if the Aeronautical Research projects at Boston that this early program. NASA has research has already pointed the way. Aeronautical Research is now building on that basic research and implementing it to develop a contemporary planning, with efficient primary and secondary objectives. It is a very good example of the government's ability to adapt to change. Research's work to these new plans, that eventually to be used as a model for other government transactions.

NWYAL | PROGRESS REPORT—As an anticipated result of the financial crisis that is going on in the support Slaves' No 10 projects from their homes in Washington, is being done in the states which have active state street outreach with their state nursing programs. Local community centers are contributing a relatively small effort to marking the state. With most of the \$100,000 is federal matching money for starting the project. The federal funding will be used to fund the project. The federal funding will be used to fund the project. The federal funding will be used to fund the project.

VETERAN SALESMAN'S ANALYSIS—Isachar Hovav, assistant to William Conner, Conner vice president, says, "marketing appears better in 1999 (in China) than in 1998, and has been through two postwar upturns before." With this background, Hovav says, "the current post-war market shock and factors leading up to it are not as severe as the 1998 market shock. American companies are not as concerned as marketing, sales and distribution people in the industry think it is. The market is driven by production and sales plans, carefully based on sales forecasting, as in Soviet Union and Eastern Europe and China." "If all production has been carried out, production would be at the rate of 75,000 to 80,000 units a year. The points to the end of two small terminals and two low diesel fuel pumps, representing not less than 30 percent savings and a good deal of savings in the cost of the gasoline industry," he says, "the dealer, operating and being sold."

MORE HAVENS' OPINIONS—Havens considers that the thousands of Indians trained immediately before, during and after World War II, will constitute a market potential which will begin to be felt within the next year or two. He is for a limited marketing strip, diverting aircraft sales from other phases of aviation, and with larger territories and larger margins for the salesman, to take advantage of India's "new aviation age." It is foreseeable that the salesman will be able to trade the "new" aircraft for the "old" aircraft, and thus, by so doing, avoid the characteristics of present airlines, including bicycle gear and hand crank, ill-equipped cabins, inefficient fuel consumption, excessive controls, and numerous airframe/aircraft, etc. Today's planes are only to fly, but pay a high emphasis on high cruising speed and too little on comfort and economy. Havens believes.

ALEXANDER M. STEIN

IATA's New President Wants Less Red Tape

PETROPOLIS, Brazil—A sleep-in tactic on trans-Amazon transport on air travel and commerce by government and tape was used by Dr. J. Berto Ribeiro Dantas, new president of the International Air Transport Association.

Much of his remarks was aimed at Brazil, which he said is a poor customer for "not encouraging the tourist. Thousands of people who have thought of Brazil for their vacations have changed their minds because of red tape."

Estimating the country's annual tourist potential at 50,000 a year, B. Dantas said the average American tourist spends nearly \$1,000 in Brazil.

■ **Example Given.** As an example of the effect of restrictions, he cited the tip here Montreal to Rio of 19 men from the IATA secretary, who had to obtain a total of 279 documents, between 600 seals and rubber stamps and 900 signatures. These formalities, he said, cost \$573 and 269 working hours.

One airline alone, he added, spends about \$11,000 a year to supply 29,662 documents for weekly flights from Stockholm to Rio and "the money must come from the fare the airline charges."

In Brazil, a Government committee has begun a bid to streamline customs and immigration procedures on the basis of recommendations by the International Civil Aviation Organization, to which he alluded.

■ **Talk Plus Agreement.** IATA's conference finished two world meetings with approval of a universal air travel credit plan, enabling passengers to use credit cards for passage in most countries, a scheme he said would be effective when definitely been settled between IATA and the Air Transport Association of America.

Fifed into operations of the IATA clearing house, the plan involves issue of four types of credit cards. It would be used and limited to use within the clearing clearing area. It would be at that time and available for use anywhere, it would be in the dollar zone and available for use anywhere and 4) issued in and restricted to North America.

Dollar clearing area countries are those of North and South America, China, the Philippines and others whose currencies are attached to the dollar. All other countries are considered in the



ENLARGEMENT AT THE AZORES

This terminal at the U.S. built airport on Santa Vitoria, the real Azores Airway station now under Portuguese control, is being rebuilt and deepened to suit modern, jet and jet transport services.

steering zone. When travel ends in the expenditure of 10,000 man-hours, they feel need be approved by the national exchange board concerned.

Steps Taken to Solve Milan Airport Problems

MILAN, Italy—Deliberately enlarging Faldemar Airport in western Milan, for improvement of which a aerial landing stage has been ordered, has led authorities at that province to shift responsibility of Louisa Airport to handle European and air services. A new field is to be built at Torino (Nizza), about 100 miles from Milan, for transatlantic air services.

Announcement of this decision is partially has attracted the attention of the Dutch KLM and the Swedish ABA, whose representatives were due in Milan to negotiate landing agreements at the new Torino Airport. In their stead, the French Air, Holland Air, and Sardinia Air services. ABA is reported to have started negotiations with the Swiss Italian Enrico Berio for purchase of twelve first passenger planes, construction of which had just begun in Italy during the war.

Argentine Air Taxi

BUEENOS AIRES—The first air taxi service in Argentina has been organized and placed in operation from a landing strip in the heart of the city along the water front. The company will take any charter work that can be handled by

its five planes at rates computed per job, presently on delivery.

Equipment includes two four-passenger Fairchild, two four-passenger Stinsons and a two-passenger Miles Gemini for ambulance purposes. The company—Impresa Turistica Argentina—plans to acquire five more planes. There will be single-engine and two-engine planes and two twin-engine ships for cargo and ambulance use.

Pakistan, India, Seek New Air Agreement

KARACHI, Pakistan—The Government of Pakistan has notified the Indian Government that it wants to open negotiations for a temporary air agreement pending drafting of a permanent one.

Meanwhile, Orient Airways Ltd., Pakistan's one and only company, has commenced service with DC-6's over three routes—one of them linking the new Dominion's western and eastern segments. The three routes: Karachi-Dacca-Colombo, three weekly; Dacca in the capital of Eastern Pakistan; Dacca and Calcutta are in the Indian Dominion.

Karachi-Lahore-Rawalpindi-Peshawar, twice weekly.

Karachi-South Lahore, twice weekly. Orient will carry all inland air mail originating in Pakistan over these routes clockwise, then taking this revenue area from Indian National Airways which serves the same routes generally



Frederick R. Browne (second from left), World News London correspondent, chats with F. W. "Doc" Meredith, designer of the new British electronic automatic pilot, at its first demonstration. Left is Sir Alan South, chairman of U.S. South & Sons (English) Ltd., and right, Ralph South, who recently succeeded his father in managing director.

London Letter:

British Building More Accessories

New focus point to lead dependence on American-made equipment.

British aviation is making good progress in freeing itself from dependence on American-built accessory equipment. Three items of latest aircraft accessories shown at the recent SAG conference at Radlett (Aviation Week, Oct. 6) 54 jobs in British production, and eventually will replace American equipment upon which the British industry have had to rely.

These include the new South Electric Pilot and two new electronic direction finders developed by General Electric Co. (England) Ltd. and Marconi Wireless Telegraph Co. Ltd. The South electric pilot, working on the m/r/n/r principle instead of the conventional displacement basis, is believed to be a step ahead of even the Sperry A-12 electronic pilot. The new British design has been used successfully in the latter stages of tests of automatic landing equipment at the Ministry of Supply's Blind Landing Experimental Unit. While the last 19 test landings were made at RAF, made use of other designs of pneumatic or hydraulic control pilots, the last 50 have been made with the new South electric unit.

This new automatic pilot was originally developed for the R.A.F. by South's Aircraft Instruments Ltd., and was designed by F. W. ("Doc") Meredith, probably England's outstanding authority in this field. Now, after more than 1,500 hours of test flights, 50 have been made by the Air Ministry, and the unit is also to be made available for civil transport use. Already 25 have been ordered for BAC and will go into its new Hercules IV transports, the unit will also be installed in the second prototype of the Britannia and in the SARO 45 flying boat.

Meredith's new d.f. in the new concept and feedback-based model, with a spherical pole only 6 ft. in diameter, and weighing only 35 lb. including the loop mechanism. G.E.C.'s version, made by Salford Electrical Instruments Ltd., was selected for the R.A.F. and market use of a new loop-shaped, a flat-bed packet about the size of a medium lunch meal, which can be accommodated in a shallow bin or in a terminal rapidly having much more compact than present-day conventional designs.

New equipment shown at Radlett on Oct. 6, London, Hereth British radio position, included two light-weight compact mobile channel, crystal controlled VHF transmitters, both a watt output by Murphy Radio and G.F.C. Four channel and better channel VHF two-way transmitters with manual controls and IS standard telephone also were on display.

It may be some months to the de-

velopment of these accessories—that of the four stages of automatic flight, the British considered the landing, the most important and therefore had concentrated on that stage, that they had already brought over 200 experimental flights down automatically by instruments (SAS 5) failed to an automatic pilot, resulted to a point a few feet above the ground, but with less than 10 percent dependability, and that in fact they had only succeeded in landing off the plane by about 50 percent, which brought it down onto the runway at the rate of about 10.2 ft. per second. Additionally, the experts, this was possible for military planes but a bet more on passengers and advantages of civil transports.

However, the Taiter I conference resolves (and after the public nature now being conducted), the experience only points up the fact that the industry is in a very much different relationship in costs in England between the annual maintenance and the airline operator. What occurred over here in this case can be compared to what might happen in the U.S. since the industry is not allowed to deal directly with Lockheed, from the beginning and continuously in applying the specifications for an order of Constellation, but had to accept decisions on most of these details made for them by the British.

—Frederick R. Browne

partnered both in CAA, U. S. Navy, USAF and elsewhere to learn that the grading lands behind the British Government's aviation research activities were themselves accused either strongly or weakly of being bad publicity suits. The reason was a conference of aviation correspondents, called by the Ministry of Supply three days after the USAF's electronic-controlled C-54 flew the Atlantic "hand-off," at which the Government merely had avoided to point out that the British themselves were well along in experiments with automatic flight.

But it would appear for the second experts from the Ministry of Supply's Blind Landing Experimental Unit, from the R.A.F. at Farnborough, and the Directorate of Instrument Research and Development, to get this point across and to show the American correspondent in its proper perspective.

As a result, the conference failed to bring its own objective to attack the public's memory that the British had been working on automatic flight since 1918, and as late as 1935 had equipped a plane that could take off, fly, and land, without a pilot. This was the "Queen Bee," hundreds of which were produced and flown.

Almost lost in the shuffle, therefore, were all the bits of information carefully gathered by these experts—that of the four stages of automatic flight, the British considered the landing, the most important and therefore had concentrated on that stage, that they had already brought over 200 experimental flights down automatically by instruments (SAS 5) failed to an automatic pilot, resulted to a point a few feet above the ground, but with less than 10 percent dependability, and that in fact they had only succeeded in landing off the plane by about 50 percent, which brought it down onto the runway at the rate of about 10.2 ft. per second. Additionally, the experts, this was possible for military planes but a bet more on passengers and advantages of civil transports.

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—Frederick R. Browne

AIR TRANSPORT

Pilot Fiddling With Gust Lock Sends DC-4 Into Outside Loop

Co-pilot reels American Airlines plane out at 300 to 400 ft. after violent maneuver; now Eastern crash verdict.

By ROBERT BOTEZ

A check pilot's certainty on the effect of engaging the gust lock while an flight was responsible for the violent maneuver of an American Airlines DC-4 over Miami Bay, Fla., on Oct. 5, according to an official Civil Aeronautics Board statement.

Capt. C. R. Soto, the check pilot and a veteran of eight years airline flying, reported from American Airlines after the incident.

■ **These Pilots—American's Flight 311, enroute from Dallas to Phoenix, was west of El Paso over Mt. Riley at 5,800 ft. when the maneuver began. These pilots were in the cockpit. Capt. Soto who was in command of the plane and sat in the jump seat between pilot and co-pilot. Capt. John Beck, in the pilot's seat, and Capt. Melvin Logan in the right hand seat were in co-pilot. Beck was about four hours with the plane and an equipment and was actively flying the plane when the maneuver began.**

Soto decided to engage the gust lock to determine what effect it would have on the controls and attitude of the plane in level flight. Failure to disengage the gust lock just prior to take-off was reported by CAB as the probable cause of a United Air Lines DC-4 crash at the end of a runway at La Guardia Field. Soto engaged the gust lock without first informing the other two pilots. The plane began to climb. A loaded DC-4 is normally tail-heavy and with controls locked in neutral would climb. A similar effect is obtained when passengers weight to the tail facilities in the tail.

■ **Check Trim Tab—As the DC-4 climbed, Beck applied manual action to counteract the climb by pulling the trim tab in a nose-down position. The trim tab control is on the control pedestal which was directly in front of Soto. Beck applied more nose-down trim without any noticeable effect on the climb which until the trim tab reached a critical nose-down position.**

Beck asked Soto if the automatic

pilot was on. Soto replied that it was not. Beck then thought of the possibility of the gust lock being engaged and studied for the trim tab to return it to normal. Before he reached the trim tab control which Soto released the gust lock, still without any warning to the other two pilots. With the gust lock released and virtually full nose-down trim, the plane pitched nose-up.

■ **Beck Unloaded—Northern Beck nor Soto had any safety belt fastened. Both were flown to the top of the cockpit. During this maneuver, Beck was in the right hand seat and Logan was in the left hand seat. Beck was in the right hand seat and Logan was in the left hand seat. Beck was in the right hand seat and Logan was in the left hand seat.**

The plane did half of an outside loop and was rolled out to the left from an inverted position by Logan, who was held in his seat by the safety belt. Logan's memory was made at least 300 to 400 ft. above the ground. Logan flew the plane back to the El Paso.

CAB reported the aircraft received minor damage to door bolts and internally from passengers striking the cabin floor. The plane was returned to American Airlines five days after the maneuver.

"Since the investigation was complete in every detail and all pertinent facts are known, which definitely establish the probable cause of the accident, it is felt that a public hearing would serve no useful purpose," CAB concluded.

■ **Eastern Report—Observers pointed out the similarity between the maneuver of the American plane and those of the Eastern Air Lines DC-8 that crashed at Sandusky, Md., last May 31 killing all 55 persons aboard. The Eastern plane, which crashed on its back, at an angle of 20 degrees after an abrupt dive. There was no indication of any relation between the cases of the two divers. However, CAB indicated it will accept public hearings on the Eastern crash on the basis of "new evidence."**

Meanwhile, Senator Owen Brewster

[R. M.] chairman of the aviation subcommittee of the Senate Interstate and Foreign Commerce Committee, released a report by the committee's investigator, Carl Delay, charging that faulty maintenance and inspection were involved in the accident.

■ **Complete Check—Delay's report stated the airplane log in indicating more than eight complaints by pilots on the DC-4's performance, including buffing and unusual vibration. Records showed that many repairs to the plane were of a temporary nature. Delay said. He added that the quality of both inspection and maintenance was "questionable."**

Delay pointed out that CAB had failed to take action on an Army Air Force mandatory order concerning the use of elevator binding bolts after the Eastern crash. The AAFL order was issued 11 months before the crash.

"It was also found that four bolts of the center hinge malleable tie attached to bracket no. 2 were too short to extend into the globe stop nut portion which was the cause. While this condition did not contribute to the accident it indicates a degree of laxity in the method of maintenance by the manufacturer, the corrective contractor, company inspectors or the CAB inspectors, all of whom failed to detect this item."

Delay recommended that airline inspectors have absolute authority to ground planes suspected of not being properly and safely completed. He also recommended that the cabin hatch of any jet gate certification, correction or determination might cause other aircraft developments.

■ **First GCA Visit—The first GCA visit of a New CCA crew at Columbus, Ohio, that brought in a Twenty-first Century Airlines DC-8 aircraft under a 20 ft. ceiling with it of a solo pilot. The aircraft, based from Baltimore to Columbus, arrived at EAM to find five diversions its destination and all available altitudes. The enroute pilot called the New tower and requested a GCA approach. The plane had 25 gals of fuel after landing.**

■ **CAB will require complete investigation previously conducted after Feb. 15, 1945, on all scheduled passenger-carrying aircraft operating during darkness at under instrument conditions.**

CAB specified that two new operational instrument procedures of these devices before personnel navigators for their use are

deleted. The instrument regulation will require the instrument to show pilots at distance of 2,000 ft., 1,000 ft., and somewhere between 100 and 300 ft. This means the highest altimeter will require modification to include the 1,000 ft. warning. It now gives warning at 2,000 ft. and 500 ft.

■ **Automatic Flight—Automatic flight will be required on all scheduled passenger and cargo aircraft by June 30, 1948.**

■ **Amendments to Civil Air Regulations are under consideration giving the CAA administrative power to prohibit or cause landing at airports which do not have adequate taxi lighting equipment or lighted windsocks at both ends of runways used by its aircraft planes.**

■ **New CAA approval of ILS for five additional airports. United is approved for Los Angeles, Burbank, Santa Monica and La Guardia Field, San Francisco for Houston, Reno, and London.**

American Overseas for London and Amsterdam, Eastern for San Antonio, Philadelphia, Washington, Indianapolis, La Guardia, Raleigh, Memphis, Jacksonville, Chicago, Cincinnati, New York, Reno, New Orleans, Newark and Detroit. All airports include lowering of minimum weather requirements by 100 ft. in ceiling and a quarter mile visibility.

Heating on possible revision of transport category requirements have been established by CAB for Nov. 3.

Atlantic Accident Stirs CAB Action

American International Airways, whose four-engine Boeing 314 flying east was downed down in mid-Atlantic on Oct. 14, last in letter of registration to operate as a non-scheduled air carrier three days later as CAB cracked down with unprecedented speed on the company for alleged violation of the Civil Aeronautics Act.

The Board moved against American International on the ground that the firm's Oct. 14 flight, and others before it, were made as a non-scheduled carrier under a license and not under a contract as the two airlines. Under section 242 of CAB's Economic Regulation Act, non-scheduled air carriers are now based from international transportation of persons after Sept. 10.

■ **Hearing Set—Meanwhile, CAB's Safety Bureau set Oct. 30 as the date for the firm's Oct. 14 flight, and others before it, were made as a non-scheduled carrier under a license and not under a contract as the two airlines. Under section 242 of CAB's Economic Regulation Act, non-scheduled air carriers are now based from international transportation of persons after Sept. 10.**

After the hearing was delayed in January was in the Coast Guard court. Bibb after it had covered less than two

Free Hike Set

Northwest Airlines' proposed "seasonal round" passenger fare increase was scheduled to go into effect Oct. 14, having CAB action to suspend the tariff. As the date approached, other carriers moved to force leadership in NWA's hands despite widespread opinion that increases are "inevitable" throughout the industry.

The proposed new NWA fare would raise rates on routes 10 percent, at the same time providing for a 10 percent discount on roundtrips. An industry-wide 10 percent passenger fare boost went into effect last April.

Under the data set from Flyers, Fly, to Glendale, New York. Flights had caused the crash to run short of fuel.

■ **Common Reply—J. Stewart Roberts, NWA president, said the firm was carrying a payload "well within the permitted by law," adding that the crash was an excellent condition and had ample fuel for a normal trip. The company had five Boeing 314s prior to the accident.**

CAB noted that AIA had not been issued a non-scheduled air carrier operating certificate under part 42 of the Civil Air Regulations. Moreover, the company had not been issued a tariff with the Board.

With increasingly severe restrictions being placed on non-scheduled operations by CAB, a number of airlines had been forced to stop flying. The Board had been forced to close their flights "out of season." American International's last trip reportedly was under contract to Air Lanka, Ltd., at London.

■ **Common Charge—CAB, by its action in recommending AIA's letter of registration, apparently believes an AIA no actual only as a passenger loading agency. The Board said the flight in question "carried passengers and property solely for the general public."**

On the New York-San Juan route, an authorized line last for was true obtained and after their allegedly contract passenger business from the agencies. What practice is now being investigated by CAB (AERONAUTICS WEEK Oct. 31).

■ **Future Action—American International has been ordered by CAB to show cause why its letter of registration should not be withdrawn automatically for "knowing and willful violation of the Civil Aeronautics Act." The carrier's reply must be made this week.**

Meanwhile, 15 other non-scheduled carriers have filed letters of objection suspended for being to the

proper tariffs and reports. Sixty-five non-scheduled operators were warned on Oct. 2 to make proper arrangements with the Civil Aeronautics Act by Oct. 17. American International was one of the carriers that failed to comply and thus would have lost its letter even without the agency's CAB action taken because of the mid-Atlantic accident.

Slack Shows Profit As Traffic Soars

Shack Airways, the nation's largest air-freight carrier, pushed into the black for the first time in 19 months, according to figures released September on a record volume of traffic.

The company reported an \$11,544 operating profit and \$13,510 net profit last month, when it had 2,054,411 freight tons, with an 8.5 percent load factor. Daily utilization of the carrier's C-46s averaged nine hours.

■ **New Month Record—During the first nine months of 1947, Shack had an operating loss of \$19,761. Revenue from traffic fees aggregated \$2,352,375, but losses averaged 76.7, and daily plane utilization was 7.8.**

In September plane, operating expenses totaled \$277,115 and averaged 13.5 cents a ton mile. Operating expenses aggregated \$269,577, or 12.31 cents a ton mile.

■ **New Equipment—By the end of this year, Shack plans to add five additional C-46s to its present fleet of 33 planes. Employment now numbers 410. Meanwhile, Shack announced that negotiations for a merger with California-based Western Air Lines are under way. The Oakland, Calif., carrier also was in the black during September and both independently said by the Rail and Waterways Commission that a New York report to show another profit in October.**

Fall Profits, More Mail Compensation Help PCA

Carlisle Airline (PCA), which lost heavily during the early half of 1946, was well in the black this September and hopes to stay there in October. Early estimates indicate the carrier's August operating gain of \$16,515 was increased several fold in September.

Meanwhile, a CAB show case order on mail rates introduces a boost of around \$40,000 in compensation between March 1, 1947, and March 31, 1948. Last April, the rate of 15¢ per pound was raised to 17¢. The plan is to be for March 1 to March 31, 1947, 15¢; from April 1 to June 30, and 16¢; from July 1 through March 31, 1948. The proposed new rate is equal to 15¢ a pound plus one for the entire 13 month period.

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EARLY CRAFTSMEN SINCE 1926

IAM Wins Bargaining Election at Challenger

The International Association of Machinists, by winning bargaining rights in a recent National Maritime Board election at Challenger Airlines, now represents ground employees of 39 domestic and overseas airlines. The Challenger bidding was held at the company's main base in Salt Lake City, and at Denver and Billings, Mont. Following its victory, the union announced it had drawn up definite proposals to offer Challenger with "technical assistance in price."

IAM also represents mechanical personnel of Capital Airlines (PCA), Eastern, Eastern National, Northwest, Northwest, TWA, United, Air Cargo Transport Corp., Midair, U. S. Airlines and The Flying Tiger Line. U. S. based mechanical personnel of BOAC and subsidiaries of Southern Airways, a fleet base operator designated for a CAA certificate, also are represented by IAM.

In several cases, IAM represents both mechanical and stock and stress personnel. At American Airlines and American Overseas Airlines, grounds belong to IAM, although mechanical workers are in the Transport Workers Union (TCU).

New Airport Service

Boston, which for a time that year had helicopter taxi operating between the business district and Logan International Airport, now has a significant ferry making the run.



AIRFREIGHT TO JAPAN

First commercial airflight to meet in Japan since the beginning of this year was in Japan at Narita Air Base, Tokyo, by J. J. Pottier and J. J. Morgan, both of Pacific West Airlines, owner of the shipment. (Wash. News photo)

SHORTLINES

► **Aeromex**—has declared a regular quarterly dividend of 87½ cents on its \$3.50 cumulative convertible preferred stock payable Dec. 1 to stockholders of record Nov. 17.

► **BOAC**—all scheduled trans-Atlantic flights are being made nonstop to Shannon, Bing, and Portland, Scotland, by using Concorde, Newmarket.

► **Capital**—Reestablishes service to Charleston, W. Va., on Dec. 1 with the opening of the new Kanawha County Airport.

► **Chicago & Southern**—inaugurates service to Terre Haute, Ind., about Nov. 1.

► **Cobleskill**—has been ordered by CAA to show cause why its temporary mail run on the route from New York and Washington to Bermuda should not be 25 cents a plane mile on and after Aug. 1, when service begins. Company had asked for \$1 a plane mile.

► **Eastern**—has made arrangements whereby Miami Miami Beach customers may make reservations by phone and request delivery of the tickets via Western Union, whose messengers will not take the money.

► **KLM**—has re-established Amsterdam, Nieuw Amsterdam, on a weekly basis.

► **National**—has placed its third Douglas DC-6 in service. A fourth DC-6 has been delivered and will be added to the fleet shortly. Company has asked CAA to apply its current 68 cents a mile and file to a "maximum poundage factor" of at least 3,000 in a plane mile for the period beginning May 1, 1947. NAL's actual average last year was 26½¢ a mile.

► **Shel**—has bought two additional C-47s for conversion to jet airplanes.

► **Texas Eastern**—Recently reduced rates on all classes of trans-Atlantic cargo.

► **TWA**—has reported gross revenue from freight reached a record \$104,000 in September, up 71 percent over August. Revenue was up 45 percent.

► **United**—Revenue passenger miles in September totaled 104,047,200, up 25 percent over the same month last year.

► **Western**—President C. C. Brockmeyer urged a CAA moratorium on domestic route rates and consolidation of some routes in a recent address at Portland, Ore.

He also urged extended government aid to airlines, consolidation of ground facilities to look duplication and waste at airports, centralized down line or terminal and business services, and equipment interchange, especially in air freight service so that cargo will not have to be unloaded on route.

► **Western**—President C. C. Brockmeyer urged a CAA moratorium on domestic route rates and consolidation of some routes in a recent address at Portland, Ore.

CAA-CERTIFICATED NONSCHEDULED OPERATIONS

OPERATORS	1	2	3	4	5	6	7	8	9	Total
Using multi-engine planes, 10,000 lb. or more	8	6	4	37	9	23	12	15	4	98
Using multi-engine planes under 10,000 lb.	37	6	18	56	26	22	11	5	5	198
Total using multi-engine planes	25	12	24	75	35	45	23	20	9	296
Using single-engine planes	120	238	280	388	275	126	136	34	1	1,702
Total Operations	145	250	304	463	310	171	163	54	10	1,998
Using Seaplanes or amphibians	59	17	39	18	7	5	14	12	1	166
Using helicopter	1	0	1	0	0	0	0	0	0	2

AIRCRAFT	1	2	3	4	5	6	7	8	9	Total
Multi-engine, 10,000 lb. or more	26	98	6	70	135	47	27	33	17	479
Multi-engine, under 10,000 lb.	33	16	75	77	34	29	19	11	15	297
Total multi-engine	59	114	81	147	169	76	46	44	32	776
Single engine	154	594	623	790	457	248	512	104	1	3,661
Total Aircraft	213	708	704	937	626	294	558	148	33	4,437

Multi-engine seaplanes or amphibians	31	1	6	0	0	2	2	7	1	57
Single engine seaplanes or amphibians	59	17	40	15	7	5	14	51	0	209
Helicopters	4	0	1	0	0	0	0	0	0	5

PILOTS EMPLOYED

Total	1065	1444	1017	1377	1278	645	605	185	83	8468
*Included in total operations										
*Included in total aircraft										

2,000 Nonscheds Get CAA Permits

Nearly 2,000 companies using 4,439 planes of all types and employing 8,468 pilots have received nonscheduled air carrier operating certificates from CAA during the past year.

CAA's Nonscheduled Operations Division is continuing to issue certificates under Part 93 of the Civil Air Regulations at the rate of about 200 monthly, with the limit expected to increase toward 3,000. Among the companies issued the safety permits have been regularly scheduled airlines, such as TWA, which conduct a number of air-rail flights.

Some companies, whose principal business is other charter or contract, also have obtained nonscheduled air carrier operating certificates. The many of the larger contract carriers have stated close of any restrictions that they are nonscheduled because of carrier CAA economic restrictions on this type of operation.

The 4,439 aircraft used by the 1,998 firms holding nonscheduled operating

certificates include 479 multi-engine planes of 10,000 lb. gross weight or more (roughly Lockheed L-1049 or larger), 297 multi-engine planes under 10,000 lb., and 3,665 single-engine craft.

Meanwhile, an incomplete CAA survey on national flying—its distinguished from nonscheduled air carrier operations—shows that 198 firms are engaged in crop dusters, 54 in seeding into the air, 37 in towing signs, 51 in patrolling power lines, 14 patrolling pipelines and 12 spraying to control mosquitoes.

PAA Route Extended

Pan American Airways' route between San Francisco and Sydney, Australia, has been extended to Melbourne, some longest of any airlines in the world. In extending PAA's trans-Pacific, CAA redesignated the former tropical point, Sydney, as an intermediate stop (page 10).

ANOTHER GREER FIRST

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WAL Employee Cuts Protested

Council suggests collective bargaining as solution, further CAB hearing if necessary.

A resolution which may seriously affect future plans to streamline the domestic transport pattern through route transfers is being proposed by the Western Air Lines (WAL) Pilots Association, the Airline Mechanics Division, UAW-CIO, and the Brotherhood of Railway and Airway Clerks, Freight Handlers, Express and Storage Employees have petitioned CAB to reconsider and modify its order of Aug. 26 approving the route transfer. The Board at that time declined to impose any conditions for the protection of Western Air Lines personnel engaged in the route, leaving its findings on WAL President T. G. DeKoven's testimony that "substantially all" ground employees affected would be shifted to the new San Francisco Seattle connection and that flight crews would be absorbed on this link.

Discharge CAB-ALPA states that a week after CAB approval of the route shift to United, Western published a letter discharging 71 pilots effective Sept. 19—four days after discontinuance of all WAL flights on AM 58. The Association had asked CAB to include, as a condition to approving the route transfer, a provision that Western pilots on the Denver-Los Angeles route would be consolidated into CAB's recently lost Airline Mechanics Division, UAW-CIO, declared that 14 mechanics and 41 ground personnel were laid off by Western about the same time as the 71 pilots. Both ALPA and the UAW expressed fear that Western also might dispose of its Inland Air Lines subsidiary without guaranteeing protection for employees affected.

UAW-ALPA—Involving the union charges, United Air Lines denied that either ground service employees or pilots had lost their jobs because of the Denver-Los Angeles route sale. "If employees were affected adversely it is because Western. We all other carriers, has been denied to make substantial cuts in operating expenses. WAL would have had to reduce personnel irrespective of the Board's decision on AM 68."

United declared it had been forced to cut its own personnel by 2,500 and that in Sept. 58 about 475 additional employees were on furlough. "If UAL were required to absorb any of WAL's employees, those violators of its own would be jeopardized. It is UAL's present view that it may have a surplus of about 180 pilots on Nov. 15 due to aircraft reductions in schedule during the winter season and other factors."

Public Counsel's Stand—Replying to the union petitions, CAB Public Counsel J. Hughes, Jr., and William F. Kennedy stated that "before proposals for route transfers or mergers could be considered, it is necessary to report labor interests involved should lead to strikes. Western has just received \$2,700,000 in cash in addition to the \$1,600,000 advanced to it by United in connection of the Route 68 transfer. The Board in addition has approved a \$4,500,000 loan made by the RUC. All this money may be lost if the strike is struck for any appreciable period by dissatisfied employees, and dissatisfied employees result."

Public counsel suggested that the union and the carrier attempt to work out their differences by voluntary collective bargaining. If this fails, a further hearing before CAB was recommended.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • PLANES • EQUIPMENT—USED • RESALE

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EDITORIAL

Sidelights Of The News

PREPARED BY THE STAFF, EDITED BY ROBERT H. WOOD

STORY BEHIND WAKEFIELD—If Ray C. Wakefield, 52, gets Truman's nod for CAB member replacing Clarence Young, charge it to a White House staff error! Wakefield was up for reappointment to Federal Communications Commission last June. Suddenly, to honor Congressman Robert F. Jones of Ohio, who was eager to be appointed to the Federal Power Commission, the President ordered a secretary to switch back from Capitol Hill the "latest appointee to FCC" to effect a substitution. The secretary confused FCC and PCC and withdrew Wakefield's name. Wakefield was astonished to read in the newspapers that he was out of a job and a surprised Jones had it. Wakefield since has kept his peace while the administration sought another both for him. Wakefield is 52, a Fresno, Calif. progressive Republican and member of the California National Committee. Earlier he was an attorney specializing in railroad regulation cases. This may be significant to the airlines: while on the Commission he was a staunch advocate of the conference method, rather than the formal and time consuming type of regulation.

LANDIS RESIGNATION RUMORS—Don't expect CAB Chairman Landis to resign. Those persistent rumors are probably circulated by certain selfish people. But that still doubts if Mr. Landis will be reappointed when his term expires Dec. 31, mainly because of increased general financial problems. Clarence Young resigned his \$10,000 Board job for the \$16,780 salary as general manager of Los Angeles Department of Airports, and was to reach the coast last week.

OTHER CAB APPOINTMENTS—White House is reported to be settled by what a civil airline management's rebanding of safety, financial and operating problems. That means future appointments to CAB won't be industry people. President is quoted as favoring individuals who "will not yield to industry pressure." He names Landis in this respect. Men already held by White House favor as suitable candidates for Landis replacements include Robert M. LaFollette, Jr., James Mead, and ex-Sen. Mitchell of Washington, all friends of the President.

ALPA TO APPROVE SAFETY CHIEF—Air Line Pilots Association has been assured no new director of the CAA's safety bureau will be appointed without the union's prior approval. H. B. Bart Cox, ALPA representative on the President's Special Air Safety Com-

mission, is the strongest contender for the job. Chairman Landis has been impressed with his Commission work, and Cox was included in the round of Washington tea and tape. But he has not yet agreed to take the post.

SAFETY BOARD SLOWS UP—Further action from the President's Special Air Safety Commission is not in the cards except for a summary report. Meetings have been few recently. Dr. Jerome Hunsaker left weeks ago to return to his MIT classes, and ALPA representative Cox has been in Paris at the ICADO conference.

CAA WANTS ALL SAFETY WORK—It should have been no surprise that Administrator T. P. Wright came out into the open before the President's Air Policy Commission on his vigorous fight to get all safety regulation functions transferred from CAB to CAA. He claims his agency already does bulk of the work in drafting safety regulations and bluntly said he was more competent to deal with these matters than the five-man CAB, concerned primarily with economic matters. Wright seems recent CAB accident reports criticizing CAA safety practices as major airline malfeas.

CAA AIRPORT CRISIS—National Aeronautics Association, its executive session today will be asked to vote on a resolution to be put before the National Aviation Clinic asking that the airport program be taken from CAA and given to Federal Works Agency. NAA is "fed up" with CAA's dilatory handling of the program.

THE NEW 2ND ASSISTANT PMSC—Paul Alden, owner in his work as second assistant Postmaster General, in charge of air mail, is a newcomer to postal work, but not aviation. He was born in Kansas 37 years ago, graduated from Kansas U., studied and taught political science at Princeton, received LL.M. and LL.M. from Geo. Washington U. in 1945. He was an economic adviser of Commerce Advisory Board of NRA; set up the first speaker bureau for the Democratic National Committee in 1936, became special counsel and assistant to the chairman of FDIC in 1937, resigning in 1940 to practice law in Cleveland. He entered AAF as a first lieutenant rising to lieutenant colonel in four years. He served in military analysis division of U. S. Strategic Bombing Survey in London, as an executive officer, tactics division, AAF Board, Orlando, Fla., and as chief of the political activities section of the Office of Military Government in Germany, where he conducted Germany's first free elections.



THE DANGER LINE for present day high speed aircraft has been the speed at which the plane leaves the supersonic shock-wave pattern—a speed which varies with altitude. An important part of Kollsman's development program for the past several years has been instrumentation for high speed subsonic and supersonic flight. Among the developments is the new Kollsman Mach Air Speed Indicator. The broad red pointer moving over the dial of this indicator reports critical speed as it changes with altitude and thus gives the pilot constant warning of the point at which the plane will enter the dangerous compressibility pattern. Operating danger is indicated by means of the white pointer on the same dial. The relationship of operating danger to the critical speed is, therefore, constantly apparent at all altitudes. On the mechanism which actuates the red pointer, settings are provided both for the proper Mach Number and the machman operational speed for the particular design of aircraft being flown.

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